Claims

I claim:

1. A drill press modified for combining a conventional drill press and a wood lathe functions into a two-in-one machine. The modified drill press can be set at either vertical position to work as a drill press or at horizontal position to work as a wood lathe. The modified drill press comprising:

A column having a base end and a free end,

A customized base is affixed to the base end of the column for providing stability to the drill press or the wood lathe when being set at vertical or horizontal positions.

A headstock is mounted on the free end of the column;

A support bracket is affixed to the headstock for supporting the headstock end when the machine is set at horizontal position to work as a wood lathe.

The headstock includes the electrical powered motor, a belt-pulley transmission system for various spindle speed settings.
A spindle is affixed to the headstock and driven by the pulley at high turning speeds.

A depth feed handle (wheel) is aligned to the spindle for driving the spindle along the longitudinal axis of the column for drilling to different depths.

A drill table adaptor is clamped on the column, and the adaptor can accept a drill table of the drill press or a tailstock of the wood lathe.

2. The modified drill press of claim 1 wherein the support to headstock is a steel bracket affixed to the motor mounting plate and extended to surround the motor to support the headstock end when the machine is set at horizontal position to work as a wood lathe.
3. The modified drill press of claim 1 wherein the base is customized (enlarged from a conventional drill press) to provide stability to the machine when it is set at either vertical position or horizontal position. Also, the base has a pre-made hole co-centered with the spindle, which enables the tailstock to be mounted on for engaging the second end of a long wood work piece if the total length of the work piece exceeds the tailstock adjusting range.
4. The modified drill press of claim 1 wherein the spindle accepts the Morse sloped shank of a standard chuck for working as a drill press or a Morse sloped shank of a spur for engaging the first end of a wood work piece as a wood lathe.
5. The modified drill press of claim 1 wherein the drill table adaptor has two ends. The mounting end is a box type clamp adjustably affixed to the column. A cranking gear inside the clamp box is engaged with the gear bar attached to the column for adjusting the drill table or tailstock in a direction parallel with the longitudinal axis of the column to accommodate different wood work piece lengths. The free end of the adaptor is a clamp, which accepts the drill table or the tailstock.
6. An accessory kit is used to provide the stand-by wood lathe functions to the machine for shaping wood work piece. The accessory kit comprising:

A driving spur of a wood lathe is removably received by the spindle to replace the drill chuck to engage the first end of a wood work piece.

A tailstock is removeably received by the drill table adaptor to replace the drill table for wood lathe functions.

A tool rest is adjustably mounted on the tool rest platform, which is clamped on the column.

7. The accessory kit of claim 6 wherein the driving spur has a Morse sloped shank, which is received by the spindle of the machine to replace the drill chuck to work as a wood lathe. The spur engages the center of the first end of the work piece to drive the work piece at various turning speeds.
8. The accessory kit of claim 6 wherein the tailstock consists of four components. They are a bushing type housing to fit in the drill table adaptor or the base hole, a tubular shaft that can be adjusted to protrude from inside the bushing housing for fine adjusting the distance between the spur and the tailstock to accommodate the different work piece lengths, an adjust wheel is affixed to one end of the tubular shaft for protrusion adjustment, and a conical point with a Morse sloped shank insertion fits in tubular shaft and its conical end engages the center of the second end of the wood work piece.
9. The accessory kit of claim 7 wherein the tool rest consists of three components. They are a box type clamp, an extension mounting bar and a tool rest bar. The tool rest platform is a box type clamp adjustably affixed to the column. The platform is adjustable in a direction parallel with the longitudinal axis of the column to provide flexibility for the tool rest to be positioned along the column. The extension mounting bar has a hole on one of the end to accept the tool rest, and the other end is slotted to be adjustably affixed to the box clamp to enable the adjustment of the distance between the too rest and the column. The tool rest supports the shaping chisel for caving the turning work piece and its insertion to the extension bar can be adjusted to different heights. (three-dimensional adjustment)